

**Priorities Committee Meeting\_Jul11\_2017**

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**STRATEGIC INITIATIVE AND UPDATE****Protected Left Hand Signal Cycles****Report Purpose**

To provide the Priorities Committee the effects and benefits to the transportation network with protected-only left turn signal phases in Sherwood Park.

**Council History**

February 7, 2017 – Council requested further information on the results and implications of the use of protected left hand signal cycles in Sherwood Park, including implications related to safety, and increased incidences of neighbourhood shortcutting and “speed on green”.

**Strategic Plan Priority Areas**

**Economy:** To improve the safety of left turn signal operation and to reduce the social costs of left turn across path collisions.

**Governance:** Left turn signal assessment warrant guidelines have been developed and revised based on nationally-accepted best practices in North America for designing and operating left turn signals.

**Social:** n/a

**Culture:** n/a

**Environment:** n/a

**Other Impacts**

**Policy:** SER-009-021 - Installation of Traffic Signals and Pedestrian Crossings

**Legislative/Legal:** n/a

**Interdepartmental:** n/a

**Summary**

Strathcona County's current left turn operation guidelines are consistent when compared to those adopted by other government agencies in Alberta and are recommended to remain in place. Left turn lane movements operated with permissive signal phasing often create safety issues for driver decisions and judgment of safe gaps in oncoming traffic. As a result of safety issues, through recorded crashes, protected-only left turn signal phasing should be implemented on dual left turn lanes that meet the warrant criteria, to improve safety by reducing the likelihood of crashes. Ongoing traffic signal analysis and field inspections are to be carried out to ensure all left turn signal phase operations are safe and promote driver understanding.

The implementation of protected-only left turn signal phasing has reduced crashes on average 78% in Strathcona County immediately after their implementation with additional reductions still anticipated as driver familiarity continues to improve. There are negative impacts to the efficiency of an intersection due to the implementation of protected-only left turn signal phasing, especially in the off peak hours due to low oncoming traffic volumes. The intermittent use of different left turn signal phases at one intersection is not possible due to the hard-wired nature of the signal lights within the traffic controller. The implementation of protected-only signal phasing is only recommended when the specific warrant criteria have been met.

There has not been an indication of increased incidences of speed on green behaviour upon the installation of protected-only left turn signals. No additional shortcutting traffic has been measured or can be attributed to the implementation of protected-only left turn signal phasing or any other arterial road impacts. The adoption of Safe Systems principles and philosophies developed in the Traffic Safety Strategy Plan 2020 (TSSP 2020) is in the process of reviewing left turn signal operations to define necessary changes in the geometry configurations, signal phasing, and timings for safer and more effective signal operations.

As protected-only left turn signals are restrictive and cause delays to left turn traffic especially during low peak and night hours, the County installs this type of signal only when absolutely necessary. The goal is to provide sufficient green times on protected-only left turn phases to allow all left turning traffic within the queue to clear during the first signal cycle. Strathcona County follows the "Left Turn Signal Assessment Warrant Guidelines" and "Policy SER-009-021 – Installation of Traffic Signals and Pedestrian Crossings" to install and operate protected-only left turn signals. A complete signal retiming is being undertaken for the entire traffic signal network in the summer of 2017 and will be designed to address current traffic volumes, patterns, and demands.

**Enclosures**

- 1 Summary Report – Implications and Results of Protected-only Left Turn Signals
- 2 Left Turn Signal Assessment Warrant Guidelines
- 3 Powerpoint Presentation – Implications and Results of Protected-only Left Turn Signals